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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/731,569	12/07/2000	Karlheinz Wienand	927-37U1	6234

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2005 MARKET STREET  
PHILADELPHIA, PA 19103

EXAMINER

AHMED, SHAMIM

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 12/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

124

## Office Action Summary

Application No.

09/731,569

Applicant(s)

WIENAND ET AL.

Examiner

Shamim Ahmed

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 23-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/396,186.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 23-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Regarding claim 23, line 1, the phrase "particularly" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

4. Regarding claim 23, line 4, the phrase "prism-shaped" renders the claim(s) indefinite because it is unclear what is meant by "prism-shaped". The word "shaped" could be simply deleted to overcome the rejection.

5. Regarding claim 23, line 5, the phrase "bridge-like" renders the claim(s) indefinite because it is unclear what is meant by "bridge-like". The word "like" could be simply deleted to overcome the rejection.

6. Regarding claim 23, lines 8-9, the phrase "wet chemical free etching" renders the claim(s) indefinite because it is unclear what is meant by "wet chemical free etching". The word "free" could be simply deleted to overcome the rejection.

Similar analysis applies to the claims 24-25.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 23 is rejected under 35 U.S.C. 102(b) as being anticipated by Liddiard (4,574,263).

As to claim 23, Liddiard discloses a detector which is a type of a resistor (col.1, lines 14-15) and a process of making the detector, wherein an insulated metal substrate is etched from the rear surface of the substrate to form holes or recess pattern through a photographic artwork (col.2, lines 43-66, col.3, lines 1-5, lines 25-43 and figure 4).

Liddiard discloses that the substrate having thin film contacts (8), which is considered as the conductor path (col.2, lines 33-36).

Liddiard also discloses that a wet etching is performed until a metal etching stop layer is reached (col.3, lines 6-11 and figure 5).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 24 and 26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liddiard (4,574,263).

Liddiard discloses a detector which is a type of a resistor (col.1, lines 14-15) and a process of making the detector, wherein an insulated metal substrate is etched from the rear surface of the substrate to form holes or recess pattern through a photographic artwork (col.2, lines 43-66, col.3, lines 1-5, lines 25-43 and figure 4).

Liddiard discloses that the substrate having thin film contacts (8), which is considered as the conductor path (col.2, lines 33-36).

Liddiard also discloses that a wet etching is performed until a metal etching stop layer is reached (col.3, lines 6-11 and figure 5).

As to claim 24, it would have been obvious to have the low thermal mass to the resistor or the detector because all the process constituent are similar and expected to have the same result.

As to claim 26, It would have been obvious to employ the membrane or etch stop layer in the metal substrate embodiment at any thickness where Liddiard discloses thickness less than .05 micrometers for controlling the heat capacity of a heat sensitive layer (see claim 15) for the purpose of stopping an etchant or for forming the conductive layer or for controlling the heat capacity as suggested by Liddiard.

As to claim 28, Liddiard also teaches that etch stop layer is applied by means of high vacuum thermal evaporation or CVD process (col.4, lines 58-63).

12. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liddiard (4,574,263) as applied to claims 24,26-28 above, and further in view of Osborne et al (4,436,593).

Liddiard discussed above in the paragraph 11 and broadly teaches the substrate can be etched using appropriate wet etchant (col.3, lines 6-11).

Liddiard fails to teach that the etching is performed by spray etching with ferric chloride.

However, in a method of etching metal such as iron-nickel alloy, Osborne et al teach that ferric chloride is used to etch efficiently and selectively with an etch-stop (col.2, lines 30-36).

Therefore, it would have been obvious to one skilled in the art at the time of claimed invention to combine Osborne et al's teaching into Liddiard's method for selectively and efficiently etching the metal substrate as taught by Osborne et al.

13. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liddiard (4,574,263) as applied to claim 23 above, and further in view of Yang (5,394,356).

Liddiard discussed above in the paragraph 8 and also teaches that the stop layer comprising silicon oxide (col.4, lines 19-25 and figure 5).

Liddiard fails to teach that the etch stop layer comprising a material selected from the group consisting of titanium, platinum, nickel and combinations thereof.

However, in a method of an etching process, Yang teaches that silicon oxide and titanium can be used as an etch stop layer during etching a conductive layer (col.3, lines 19-26).

Therefore, it would have been obvious to one skilled in the art at the time of claimed invention to combine Yang's teaching into Liddiard's method because both the titanium and silicon oxide are functionally equivalent during etching a conductive layer as taught by Yang.

### ***Conclusion***

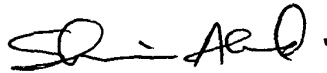
14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Maynard et al (4,482,426) disclose a conventional etching process of nickel-iron alloy having etch resistant stencils on the both major surfaces of the alloy using ferric chloride solution; Ohsawa et al (5,349,238) disclose a process of making a semiconductor device, wherein a metal layer copper or iron-nickel is etched using a wet etchant with etch stop layer of aluminum (col.3, lines 32-49).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (703) 305-1929. The examiner can normally be reached on M-Thu (7:00-5:30) Every Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on (703) 308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Shamim Ahmed  
Examiner  
Art Unit 1765

SA  
December 4, 2002